**Tata Institute of Fundamental Research**
Survey No. 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy Dist., Hyderabad – 500 046

# Seminar

## Contractility-mediated cell migration in a complex environment

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Cells harness chemical energy to generate forces that drive their motion. In the absence of an external medium, steady migration arises from spontaneous symmetry breaking of the cytoskeleton, producing a polarized front and rear. In crowded or extracellular matrix environments, which are often viscoelastic, confinement enhances the role of contractile forces, and the surrounding mechanics further shape cell behaviour. In this talk, I will discuss how this interplay between internal dynamics of cytoskeleton and external medium can lead to oscillatory motion, penetration, trapping, or bouncing at viscoelastic boundaries. I will also present a simple theoretical model of migration through narrow constrictions that captures the essence of more complex descriptions and offers insight into how cells navigate diverse environments.

***Thursday, Oct 16th 2025***

***16:00 Hrs (Tea / Coffee 15:45 Hrs)***

***Auditorium, TIFRH***